



Australian Government

Department of Education, Employment and Workplace Relations

CPCCSF2003A Cut and bend materials using oxy-LPG equipment

Release: 1

CPCCSF2003A Cut and bend materials using oxy-LPG equipment

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required to heat, cut and bend construction materials using oxy-LPG equipment.

It includes planning and preparation for the work, setting up and testing the equipment, cutting materials, heating and bending materials, shutdown of equipment and completion of clean-up activities.

Application of the Unit

Application of the unit

This unit supports the attainment of skills and knowledge to use oxy-LPG-acetylene equipment to cut and bend materials for steelfixing applications, which includes working with others and as a member of a team. It does not involve specialist welding techniques.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units

CPCCOHS2001A

Apply OHS requirements, policies and procedures in the construction industry

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare.	1.1. Work instructions, including plans, specifications, quality requirements and operational details are obtained from relevant information, confirmed and applied to the scope of work performed. 1.2. Safety (OHS) requirements are followed in accordance with safety plans and policies. 1.3. Signage and barricade requirements are identified and implemented. 1.4. Plant, tools and equipment are selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported prior to commencement. 1.5. Materials quantity requirements are calculated in accordance with plans, specifications and quality requirements. 1.6. Materials appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use. 1.7. Environmental requirements are identified for the project in accordance with environmental plans and statutory and legislative authority obligations and applied.
2. Set up and test equipment.	2.1. Correct fire extinguisher is selected and located to be readily accessible prior to and during operations. 2.2. Regulators are attached to oxy and acetylene bottles in accordance with manufacturer specifications and OHS regulations. 2.3. Lines are purged to manufacturer recommendations prior to lighting up. 2.4. Equipment is tested for leaks and corrective action undertaken or faults reported. 2.5. Correct pressures and cutting tips are selected in accordance with material to be cut and manufacturer specifications.
3. Cut material.	3.1. Material is accurately marked and secured or clamped ready for cutting. 3.2. Torch is lit correctly and safely according to manufacturer specifications. 3.3. Setting of flame is adjusted for cutting to manufacturer recommendations. 3.4. Correct cutting position is adopted during cutting to

ELEMENT	PERFORMANCE CRITERIA
	set-out mark.
4. Heat and bend material.	4.1. Material is accurately marked and securely clamped ready for cutting. 4.2. Torch is lit correctly and safely according to manufacturer specifications. 4.3. Heat is applied to specified material and weakening effects of the heating process are minimised. 4.4. Material is bent to specification and correctly cooled.
5. Shut down.	5.1. Torch is switched off according to manufacturer specifications. 5.2. Gas supply is shut off according to manufacturer specifications.
6. Clean up.	6.1. Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specification. 6.2. Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and standard work practices.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills for this unit are:

- communication skills to:
 - determine requirements
 - follow instructions
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - report faults
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals

REQUIRED SKILLS AND KNOWLEDGE

- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- mathematical and numeracy skills to apply measurements and calculations
- organisational skills, including the ability to plan and set out work
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technological skills to:
 - use a range of mobile technology, such as two-way radio and mobile phones
 - voice and hand signals to access and understand site-specific instructions.

Required knowledge

Required knowledge for this unit is:

- construction and steelfixing terminology
- job safety analysis (JSA) and safe work method statements
- material safety data sheets (MSDS)
- materials storage and environmentally friendly waste management
- oxy acetylene and LPG heating and cutting equipment set-up and operating techniques
- oxy acetylene and LPG heating and cutting equipment types, characteristics, uses and limitations
- plans, drawings and specifications
- processes for the calculation of material requirements
- quality requirements
- types and properties of steelfixing materials
- workplace and equipment safety requirements.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

This unit of competency could be assessed in the workplace or a close simulation of the workplace environment, provided that simulated or project-based assessment techniques fully replicate construction workplace conditions, materials, activities, responsibilities and procedures.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

A person who demonstrates competency in this unit must be able to provide evidence of the ability to:

- locate, interpret and apply of relevant information, standards and specifications
- comply with site safety plan and OHS legislation, regulations and codes of practice applicable to workplace operations
- comply with organisational policies and procedures, including quality requirements
- safely and effectively use tools, plant and equipment
- communicate and work effectively and safely with others
- use both oxy-acetylene and LPG systems to cut to specification a range of bars up to and including 36mm
- heat and bend a minimum of three bars to specification including at least one 36mm bar.

Context of and specific resources for assessment

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the

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mandatory task requirements

- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe work practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry related systems information.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

Method of assessment

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at

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the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge

- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Information includes:

- diagrams or sketches
- instructions issued by authorised organisational or external personnel
- manufacturer specifications and instructions, where specified
- MSDS
- memos
- regulatory and legislative requirements pertaining to cut and bend materials using oxy/LPG equipment
- relevant Australian standards
- safe work procedures relating to cut and bend materials using oxy/LPG equipment

RANGE STATEMENT

Scope of work:

Safety (OHS) is to be in accordance with state and territory legislation and regulations and project safety plan and may include:

- signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.
- cutting of steel includes cutting up of waste for salvage, cutting reinforcement steel and cutting holes in plate
- bending includes reinforcement steel
- all work is to conform to the requirements of relevant Australian standards.
- emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
- handling activities that may require the assistance of others or the use of manual or mechanical lifting devices where size, weight or other issues, such as a disability are a factor
- hazard control
- hazardous materials and substances, including cement and curing agents
- organisational first aid
- PPE prescribed under legislation, regulations and workplace policies and practices
- safe operating procedures, including the conduct of operational risk assessment and treatments associated with:
 - cutting, grinding and welding equipment
 - lighting
 - power equipment
 - power leads and sources
 - trip hazards
 - work site visitors and the public
 - working in confined spaces
 - working in proximity to others
 - working with metals under stress
- use of firefighting equipment
- use of tools and equipment
- workplace environmental requirements and safety.

Equipment includes:

- cylinders
- regulators

RANGE STATEMENT

Materials:

- gas tubing
- cutting blowpipes
- flint lighters
- measuring tapes and rules
- clamps and support stands.
- include:
 - cutting consumables
 - deformed bars
 - mesh sheets of deformed bars
 - mesh sheets of plain bars
 - plain rods
- may include:
 - pipe sections
 - scaffolding components
 - structural steel sections.

Quality requirements include relevant regulations, including:

- Australian standards
- internal company quality policy and standards
- manufacturer specifications
- workplace operations and procedures.

Environmental requirements include:

- clean-up management
- dust and noise
- waste management.

Statutory and regulatory authorities include:

- federal, state and local authorities administering the applicable Acts, regulations and codes of practice.

Unit Sector(s)

Unit sector

Construction

Functional area

Functional area

